

# IDENTIFYING TRANSITORY PROCESSING BEHAVIORS OF APHASIC PERSONS ON WRITING TASKS

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## **Abstract:**

Researchers investigating the writing abilities of adult aphasic: persons have focused their attention primarily on the permanent (hard-print) attributes of the patient's written message; that is, on defects in the mechanics of writing, abnormalities of syntax and semantic context, and spelling errors (Benson, 1979, pp. 121-128; Kertesz, 1979, pp. 211-230; Goodglass & Kaplan, 1981). Similarly, scoring and interpretation systems of most popular aphasia assessment batteries direct the speech-language pathologist to examine the aforementioned features of the aphasic patient's written messages (e.g., *Aphasia Language Performance Scales (ALPS)*, (Keenan & Brassell, 1975); *Boston Diagnostic Aphasia Examination (BDAE)*, (Goodglass & Kaplan, 1972); *Communicative Abilities in Daily Living (CADL)*, (Holland, 1980); *Minnesota Test for Differential Diagnosis of Aphasia (MTDDA)*, (Schuell, 1965); *Western Aphasia Battery (WAB)*, (Kertesz, 1982). With the limited exception of the revised multidimensional scoring system of the *Porch Index of Communicative Ability (PICA)* (1981), none of these formal aphasia tests direct the examiner to observe and record the transitory processing behaviors employed by aphasic individuals during their efforts to complete a writing task.

## **Article:**

### **PURPOSES**

In a discussion of future issues in a clinical aphasiology, Chapey (1981, pp. 363-365) gives credence to the clinical importance of analyzing transitory behaviors by stating that:

Assessment will become increasingly more systems oriented rather than normative or categorical. . . . Specifically, tests will analyze how information is processed, how problems are solved, and/or how tasks are learned by each patient. (p. 363)

To heighten the awareness of aphasiologists regarding the strategies employed by aphasic persons when generating written messages, the investigators sought to (a) identify the transitory processing behaviors exhibited by adults with acquired aphasia during writing tasks; (b) determine which of the behaviors facilitated and which inhibited appropriate writing abilities; and (c) discuss the clinical implications for assessment and treatment of writing disorders among aphasic adults.

For purposes of this study, transitory processing behaviors are defined as the specific strategies used by aphasic individuals when attempting to convey messages in writing. These strategies occur between presentation of clinician instructions and the final attempt by the aphasic patient to complete the writing task.

### **METHOD**

Thirty aphasic patients (19 males and 11 females) participated in the study. These patients were referred to the speech-language pathology service of a private acute care hospital. The mean age of the patients was 62.9 years with an age range of 48-74 years. Formal education ranged from 6-17 years with a mean educational level of 10.3 years. Approximately 66% of the patients had experienced an occlusive cerebrovascular accident (CVA) in the left hemisphere, while 34 % of the patients had suffered a hemorrhagic left CVA. All patients were between 5 days and 6 weeks poststroke.

The 30 aphasic subjects were observed by one of two judges during administration of six writing subtests selected from four standardized aphasia test batteries. The items that were assessed and the respective aphasia test from which each was selected included: (a) name and address (WAB); (b) copying geometric shapes (PICA), letters (MTDDA), words (PICA), and sentences (WAB); (c) alphabet and numeric serial writing (BDAE); (d) word and sentence dictation (WAB); (e) written sentence formulation (MTDDA); and (f) written paragraph formulation (BDAE). Standard administration procedures as indicated for each test were employed.

In addition to direct observation, a videotaped recording of each patient was obtained, and later viewed by a second judge to establish interjudge agreement regarding the transitory processing behaviors exhibited by each aphasic subject in the attempt to complete the writing tasks.

## RESULTS

### *Transitory Processing Behaviors*

After observing several patients, specific patterns of transitory processing behaviors began to emerge. These behaviors were labelled and later classified according to four general categories: Verbalization/ Auditorization Behaviors, Visual Scanning Behavior, Motoric Behaviors, and Obstructive Behaviors. A description of the specific transitory processing behaviors identified under each category appears in Table I.

### *Facilitating and Inhibiting Behaviors*

The second part of the study examined which of the observed transitory processing behaviors facilitated or inhibited the patient during performance on the writing tasks. The investigators found that the

**Table 1. Transitory processing behaviors exhibited by thirty aphasic patients on writing tasks.**

CATEGORY I Verbalization/Auditorization		CATEGORY III Motoric		CATEGORY IV Obstructive	
1. <i>Simultaneous verbalization and writing.</i> The patient either spells the word, says the word, or combines the two strategies while writing. Verbalization may be subvocal or fully audible.	1. <i>Motoric rehearsal.</i> The patient pre-constructs letters or words (usually in the air) prior to actually writing on paper.	1. <i>Delayed response.</i> The patient pauses in the middle of a writing task or does not initiate the writing act immediately after instructions are given.	2. <i>Perseveration.</i> The patient demonstrates continuous use of certain letters, words, or sentences irrespective of instructions given by the examiner to perform the writing activities.	3. <i>Task rejection.</i> The patient refuses to continue the writing task after single or multiple attempts.	4. <i>Emotional evocation.</i> The patient verbally or nonverbally signals frustration during the writing activity.
2. <i>Fill in.</i> The patient omits a word or letter in writing that he/she verbalizes out loud.	2. <i>Markovers.</i> The patient returns to previously written letters or words, and changes the letter/word either rendering it legible or illegible.	3. <i>Nontraditional letter formation.</i> The patient constructs letters in an unconventional manner. Letters are legible.	4. <i>Right-left hand alteration.</i> The patient switches back and forth between the use of left and right hands, comparing the quality of writing with each.	5. <i>Self correction.</i> The patient returns to previously written words and adds additional letters or letter parts to correct the error.	
3. <i>Error recognition.</i> The patient verbalizes that he/she has made an error in writing, and either attempts or does not attempt to correct the error.	3. <i>Request for additional information.</i> The patient requests repeated instructions or seeks additional assistance from the examiner that will facilitate his/her writing efforts.				
4. <i>Review.</i> The patient rereads what he/she has written previously and then resumes writing.					

transitory behaviors categorized as Obstructive Behaviors (Category IV) tended to adversely affect the writing performance of the aphasic subjects. Additionally, the behavior of omitting words or letters in writing that were verbalized aloud (Fill-ins) tended to hinder writing performance.

In contrast, patients who exhibited processing behaviors from Categories I (with the exception of Fill-ins), II, and III seemed to perform successfully on writing tasks. These facilitative processing behaviors appeared to be self-cueing strategies generated by the aphasic patients to assist them in carrying out the writing tasks.

## DISCUSSION

It would appear that the identification, categorization, and quantification of transitory processing behaviors may provide the aphasiologist with valuable information regarding the internal cueing strategies used by aphasic persons during writing tasks. Similarly, the aphasiologist may be able to identify and record those behaviors which prevent the aphasic person from completing the writing task. Once identified, the clinician and aphasic patient can incorporate facilitative processing behaviors into faunal writing therapy programs to increase functional writing skills, and endeavor to minimize inhibitory processing behaviors.

Although past investigators have alluded to some of these behaviors (Eisenson, 1973, p. 180; Porch, 1981; Albert, Goodglass, Helm, Rubens, & Alexander, 1981, pp. 47-48), this study provides the aphasiologist with a more complete picture of the various types of transitory behaviors that may be observed during written performances by aphasic persons. In view of the sample size (30 subjects), however, the list of transitory processing behaviors that were identified cannot be all inclusive. Thus, the recording form constructed by the investigators, which may be used to quantify the observed transitory behaviors (Appendix A), allows the examiner to record additional behaviors that may occur under each category.

The importance of assessing the transitory processing behaviors by aphasic individuals during writing activities becomes even more apparent when reviewing literature regarding the relationship of the graphic modality to other channels of communication. Pheips-Terasaki and Phelps (1981, pp. 1-26) state that efficiency in written expression is built on a foundation of adequacy in listening comprehension, speaking, and reading. Myklebust (1960) made similar assertions in his model of the developmental progression of language which indicates that the developmental hierarchy originates with an inner language system and culminates in written expression ability. Given this information regarding the hierarchical status of written expression in the developmental sequence of language, and the dependent nature of writing skills on other communication channels, one can see why writing has been determined to be an extremely sensitive measure of aphasic impairment (Kertesz, 1979), and why specific forms of writing disorders tend to parallel some oral language deficits (Kaplan & Goodglass, 1981, pp. 309-310).

Finally, with the advent of therapy programs such as Promoting Aphasics' Communicative Effectiveness (Davis & Wilcox, 1981, pp. 169-193) Conversational Prompting (Cochran, 1980) and functional communication regimens (Aten, Caligiuri, & Holland, 1982) all of which to varying degrees encourage the use of writing to convey messages, the aphasiologist must become sensitive to how aphasic persons communicate by capitalizing on unconventional as well as conventional strategies to convey messages. The concept of transitory processing behaviors merits further study as an approach to validation of those behaviors aphasic persons are using to help themselves communicate. Future research will focus on the relationship between transitory processing behaviors exhibited by patients and such variables as site of lesion, pre-morbid educational level, age, sex, and type of writing task presented.

## REFERENCES

- Albert, M. L., Goodglass, H., Helm, N. A., Rubens, A. B., & Alexander, M. P. *Clinical aspects of dysphasia*. New York: SpringerVerlag Wien, 1981.
- Aten, J. L., Caligiuri, M. P., & Holland, A. L. The efficacy of functional communication therapy for chronic aphasic patients. *JSHD*, 1982, 47, 93-96.
- Benson, D. F. *Aphasia, alexia, agraphia*. New York: Churchill Livingstone, Inc., 1979.
- Chapey, R. What do we need to know? Future issues in clinical aphasiology. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia*. Baltimore, Maryland: Williams and Wilkins, 1981.
- Cochran, M. *Conversational prompting*. Veterans Administration Workshop, Temple, Texas, 1980.
- Davis, G. A., & Wilcox, J. M. Incorporating parameters of natural conversation in aphasia treatment. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia*. Baltimore, Maryland: Williams and Wilkins, 1981.
- Eisenson, J. *Adult aphasia*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1973.
- Goodglass, H., & Kaplan, E. *Boston Diagnostic Aphasia Exam (BDAE)*. Philadelphia, Pennsylv<sup>a</sup>ni<sup>a</sup> er 1Q72

- ca and Febiger, 1972. Holland, A. L. Functional communication in the treatment of aphasia. In L. Bradford (Ed.), *Communication disorders: An audiojournal for continuing education*. New York: Grune and Stratton, 1978.
- Holland, A. L. *Communicative Abilities in Daily Living (CADL): A test of functional communication for aphasics adults*. Baltimore, Maryland: University Park Press, 1980.
- Kaplan, E., & Goodglass, H. Aphasia-related disorders. In M. T. Sarno (Ed.), *Acquired aphasia*. New York: Academic Press, Inc., 1981.
- Keenan, J. S., & Brassell, E. G. *Aphasia Language Performance Scales (ALPS)*. Murfreesboro, Tennessee: Pinnacle Press, 1975.
- Kertesz, A. *Aphasia and associated disorders: Taxonomy, localization, and recovery*. New York: Grune and Stratton, Inc., 1979.
- Kertesz, A. *Western Aphasia Battery (WAB)*. New York: Grune and Stratton, Inc., 1982.
- Myklebust, H. R., *The psychology of deafness*. New York: Grune and Stratton, Inc., 1960.
- Phelps-Terasaki, D., & Phelps, T. *Written language instruction and remediation*. Gaithersburg, Maryland: Aspen Systems Corporation, 1981.
- Porch, B. *Porch Index of Communicative Ability (PICA)*. Palo Alto, California: Consulting Psychologists Press, 1981.
- Schuell, H. *Minnesota Test for Differential Diagnosis of Aphasia (MTDDA)*. Minneapolis, Minnesota: University of Minnesota Press, 1965.

## APPENDIX A

### RECORDING FORM

#### TRANSITORY PROCESSING BEHAVIORS ON WRITING TESTS

Patient \_\_\_\_\_ Diagnosis \_\_\_\_\_

Date \_\_\_\_\_ Writing Task \_\_\_\_\_

(Talley Transitory Processing Behaviors Exhibited)

#### I. VERBALIZATION/AUDITORIZATION BEHAVIOR

##### A. Simultaneous verbalization and writing:

1. Subvocalization
  - a. Spelling word
  - b. Saying word
2. Fully audible
  - a. Spelling word
  - b. Saying word

##### B. Fill-ins:

##### C. Error recognition:

1. With correction attempt
2. Without correction attempt

##### D. Request for additional information:

E. Other (please specify and talley): \_\_\_\_\_

#### II. VISUAL SCANNING BEHAVIOR

##### A. Review:

B. Other (please specify and talley): \_\_\_\_\_

#### III. MOTORIC BEHAVIOR

##### A. Motoric rehearsal:

##### B. Markovers:

##### C. Nontraditional letter formation:

##### D. Right-left hand alteration:

##### E. Self correction:

F. Other (please specify and talley): \_\_\_\_\_

#### IV. OBSTRUCTIVE BEHAVIOR

##### A. Delayed response:

##### B. Perseveration:

- C. Task rejection:
  - 1. Single attempt
  - 2. Multiple attempt
- D. Emotional evocation:
- E. Other (please specify and talley):